

In the Claims

Claim 1 (Currently Amended): A method of fluorinating an aromatic compound or chloroaromatic compound comprising the steps of:

- a) mixing at least one active fluorinating agent selected from the group consisting of CuF_2 , AgF , HgF_2 , TeF_4 , MnF_4 , FeF_3 , and CoF_{2-4} with at least one support selected from the group consisting of activated carbon, ZnF_2 , CaF_2 , MgF_2 , AlF_3 , and combinations of activated carbon, ZnF_2 , CaF_2 , MgF_2 , or AlF_3 ;
- b) heating said mixture [[to at]] a temperature of at least 300°C or 350°C ; and
- c) contacting said mixture with an aromatic compound, a chloroaromatic compound, a mixture of aromatic compounds, a mixture of chloroaromatic compounds, or a mixture of chloroaromatic and aromatic compounds.

Claim 2 (Original): The method according to claim 1, wherein said method further comprises recovering fluorinated aromatic or chloroaromatic compounds.

Claim 3 (Original): The method according to claim 1, wherein said temperature is at least 400°C .

Claim 4 (Original): The method according to claim 1, wherein said temperature is at least 425°C .

Claim 5 (Original): The method according to claim 1, wherein said temperature is at least 450°C .

Claim 6 (Original): The method according to claim 1, wherein said temperature is at least 500°C .

Claim 7 (Original): The method according to claim 1, wherein said aromatic or chloroaromatic compound is selected from the group consisting of benzene, chlorobenzene, substituted benzene, substituted chlorobenzene, pyridines, chloropyridines, substituted pyridines, substituted chloropyridines, naphthalene, substituted naphthalenes, chloronaphthalene, substituted chloronaphthalenes, toluene, chlorotoluene, substituted toluene, and substituted chlorotoluene.

Claim 8 (Original): The method according to claim 1, wherein aromatic compounds are contacted with said mixture.

Claim 9 (Original): The method according to claim 1, wherein chloroaromatic compounds are contacted with said mixture.

Claim 10 (Original): The method according to claim 1, wherein a mixture of chloroaromatic and aromatic compounds are contacted with said mixture.

Claim 11 (Original): The method according to claim 9, wherein said mixture comprises AgF and at least one support.

Claim 12 (Original): The method according to claim 8, wherein said aromatic compounds are aromatic hydrocarbons.

Claim 13 (Original): The method according to claim 12, wherein said aromatic compounds are contacted with a mixture comprising CuF₂ and at least one support.

Claim 14 (Original): The method according to claim 9, wherein said chloroaromatic compound is ortho-dichlorobenzene, para-dichlorobenzene, meta-dichlorobenzene, a chloropyridine, chloronaphthalene, a chloropyridine, chlorotoluene, substituted ortho-dichlorobenzene, substituted para-dichlorobenzene, substituted meta-dichlorobenzene, a substituted chloropyridine, substituted chloronaphthalene, a substituted chloropyridine, substituted chlorotoluene, or mixtures thereof.

Claim 15 (Currently Amended): The method according to claim 14, wherein said ~~mixture~~ chloroaromatic compound is contacted by a mixture comprising AgF and at least one support.

Claim 16 (Canceled).

Claim 17 (Original): The method according to claim 12, wherein said aromatic compounds are contacted with a mixture consisting of CuF₂ and at least one support.

Claim 18 (Original): The method according to claim 11, wherein said mixture further comprises CuF₂.

Claim 19 (Original): The method according to claim 13, wherein said mixture further comprises AgF.

Claim 20 (Currently Amended): A method of fluorinating an aromatic compound comprising combining an aromatic compound, a chloroaromatic compound, a mixture of aromatic compounds, a mixture of chloroaromatic compounds, or a mixture of chloroaromatic and aromatic compounds and a fluorinating composition comprising at least one active fluorinating agent selected from the group consisting of CuF₂, AgF, HgF₂, TeF₄, MnF₄, FeF₃, and CoF₂₋₄ and at least one support selected from the group consisting of activated carbon, ZnF₂, CaF₂, MgF₂, AlF₃, and combinations of activated carbon, ZnF₂, CaF₂, MgF₂, or AlF₃ and heating the combined components ~~[[to at]]~~ at a temperature of at least 350°C.

Claim 21 (New): The method according to claim 5, wherein said mixture comprises one part active fluorinating agent and one part to three parts of the at least one support.

Claim 22 (New): The method according to claim 21, wherein the active fluorinating agent is CuF₂ and at least one support is AlF₃.

Claim 23 (New): The method according to claim 5, wherein said mixture comprises one part active fluorinating agent and two parts of the at least one support.

Claim 24 (New): The method according to claim 23, wherein the active fluorinating agent is CuF_2 and at least one support is AlF_3 .

Claim 25 (New): The method according to claim 6, wherein said mixture comprises one part active fluorinating agent and one part to three parts of the at least one support.

Claim 26 (New): The method according to claim 6, wherein said mixture comprises one part active fluorinating agent and two parts of the at least one support.

Claim 27 (New): The method according to claim 25, wherein the active fluorinating agent is CuF_2 and at least one support is AlF_3 .

Claim 28 (New): The method according to claim 26, wherein the active fluorinating agent is CuF_2 and at least one support is AlF_3 .

Claim 29 (New): A method for producing fluorobenzene comprising:

a) mixing at least one active fluorinating agent selected from the group consisting of CuF_2 , AgF , HgF_2 , TeF_4 , MnF_4 , FeF_3 , and $\text{CoF}_{2.4}$ with at least one support selected from the group consisting of activated carbon, ZnF_2 , CaF_2 , MgF_2 , AlF_3 , and combinations of activated carbon, ZnF_2 , CaF_2 , MgF_2 , or AlF_3 ;

b) heating said mixture at a temperature of at least 450°C ; and

c) contacting said mixture with an aromatic compound, a chloroaromatic compound, a mixture of aromatic compounds, a mixture of chloroaromatic compounds, or a mixture of chloroaromatic and aromatic compounds.

Claim 30 (New): The method according to claim 29, wherein the temperature is at least 500°C .

Claim 31 (New): The method according to claim 29, wherein said aromatic or chloroaromatic compound is selected from the group consisting of benzene, chlorobenzene, substituted benzene, substituted chlorobenzene, pyridines, chloropyridines, substituted pyridines, substituted chloropyridines, naphthalene, substituted naphthalenes, chloronaphthalene, substituted chloronaphthalenes, toluene, chlorotoluene, substituted toluene, and substituted chlorotoluene.

Claim 32 (New): The method according to claim 29, wherein said mixture comprises one part active fluorinating agent and one part to three parts of the at least one support.

Claim 33 (New): The method according to claim 32, wherein the active fluorinating agent is CuF_2 and at least one support is AlF_3 .

Claim 34 (New): The method according to claim 29, wherein said mixture comprises one part active fluorinating agent and two parts of the at least one support.

Claim 35 (New): The method according to claim 34, wherein the active fluorinating agent is CuF_2 and at least one support is AlF_3 .

Claim 36 (New): The method according to claim 33, wherein the support is AlF_3 .

Claim 37 (New): The method according to claim 35, wherein the support is AlF_3 .

Claim 38 (New): The method according to claim 29, wherein said method further comprises recovering fluorinated aromatic or chloroaromatic compounds.